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Telefunken-Modcomp link

THE West German joint venture company between AEG-Telefunken (75%) and Modcomp of Florida (25%) is to be called ATM Computer GmbH and will be based in Munich. Digital Equipment's former Central European manager Helmut Conzel has been appointed president.

The new company will develop, manufacture and market minicomputer systems, and will start with Modcomp's Classic line and AEG-Telefunken's 80/20, 80/40 and 80/60 process control computers (October 25, 1979).

Scicon wins vote for MPs' retrieval system

SCICON has been chosen to provide an online information retrieval service to the House of Commons, on a bureau basis, finally bringing MPs into the computer age after 10 years of discussions.

Answers to Parliamentary Questions will be the first category of information to be loaded on to the system, giving MPs for the first time a subject index to Questions.

The service will run on a Univac 1100/81 at Scicon's computer centre in Milton Keynes, Bucks. The retrieval software will be Univac's Unidax package, which uses the DMS 1100 database management system. This can handle fixed, format-

ted, or free text; at the House of Commons it will be used with a controlled indexing language that has already been compiled.

The online service will be supplanting nine different strip indexes that are currently in use in the Commons library (CW, February 29). Following Parliamentary Questions will be references to debates, legislation, EEC documents and current affairs.

When the system is fully operational about 100,000 references will be added per year. It is hoped to start live working in the autumn, in time for the new session of Parliament. Initially eight terminals will

be installed: in the library, in a nearby office building where data entry will be carried out, and one for use by the House of Lords. These will be 2830 and 2884 VDUs from Cifer, linked to Milton Keynes by private line.

Costs are not being disclosed, but they are described as "well within" the guidelines that had been laid down by the Commons services committee, namely £600,000 for the first year and £200,000 for subsequent years. The contract with Scicon is for a minimum of six years.

The system has been organised to be compatible with future developments in Parliamentary computerisation. These might include word processing, access

to outside databases and retrieval of full text from Hansard, which is now switching over to computer typesetting.

A computer and technical services section has been set up to run the system, headed by Jane Wainwright, formerly a researcher with Aslib, the special libraries association.

No attempt will be made to load data on to the system retrospectively, and so it will have to be used in conjunction with the strip indexes for some time.

About 45,000 Questions are tabled each year. The systems will be expandable up to 30 terminals.

Siemens boost

SOFTWARE to enable terminals to communicate with both Siemens and IBM mainframes is to be developed by DFVLR, the West German space agency. The system will provide a bridge between SNA and Siemens Transdata terminals, and is regarded as a strong plus for Siemens since the West German government is encouraging its agencies with IBM machines installed to add Siemens machines where they need more power.

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3M's last chance in the office?

OFFICE products firm 3M is facing its last chance to get into the electronic office market, says a US report. Meanwhile the company has launched in the UK a digital facsimile transceiver capable of transmitting an A4 page in under one minute.

Called M9600, it operates closely in accordance with the expected International CCITT Group 3 recommendation for digital transmissions of under one minute.

At £8,990, the transceiver is about five times the price of 3M's M2346 launched in Europe 18 months ago. The firm says it is cheaper to use for over 50 transmissions a day within one country or 14 internationally.

Facsimile transceivers were still too expensive to replace the postal service, said 3M's market development manager Mike Cook, but the UK market was currently growing at about 2% a year.

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Briefing GEC delays cash for Immos

A REQUEST for general information about Immos has been put to the National Enterprise Board by GEC, and talks between the two will go ahead when it is received. According to the Department of Industry, GEC's interest in Immos is one reason for the government to delay further its decision about the second £25 million tranche.

AXE for Ireland

L.M. ERICSSON has confirmed that it has received orders from the Irish Ministry of Posts and Telegraphs for its AXE telephone exchanges (CW, March 20) to be installed at the rate of about 50,000 lines a year over a five-year period starting in 1982. The company's plant in Athlone will be enlarged to handle the contract, and training of additional software designers and programmers has already begun.

Datasab talks?

TALKS terminated in January between ICL and Datasab on an OEM agreement for Datasab's banking and Alfakop display terminals have given rise to speculation that the Swedish company is up for sale. Datasab denies this, although a possible equity stake was discussed at the talks.

Troubled issue

WE apologise to our readers and advertisers for the absence again of some regular features and for the reduced news coverage in Computer Weekly. The problem was caused by circumstances beyond our control.

COMPUTER WEEKLY

Number 702 Thursday, April 17, 1980 Price 20p

French terrorists attack computer firms

TWO French terrorist groups are claiming responsibility for attacks on computer companies in Toulouse last week in which one machine was totally destroyed by fire and another was seriously damaged.

First terrorist contact came from a group calling itself Direct Action, which said it had burned stored computer programs and sabotaged a computer at Philips Data Systems' office in Toulouse because it was being used to process information for the French intelligence service and armed forces. Philips has denied this.

Direct Action also claimed that it had

carried out a second attack on CII-Honeywell Bull's office in Toulouse for the same reason. A 81/DPS system and what CII described as "a lot of paper" was destroyed by fire during this incident.

Police investigating the two incidents believe that they are linked but are less certain that Direct Action was responsible.

Instead, a second terrorist group calling itself Clodo, the Committee to Liquidate or Neutralise Computers, which has also claimed responsibility for the attacks, looks a more likely candidate. It is believed to have given sufficiently good descriptions of the two computer company offices

and their contents to convince the police of the authenticity of its claim.

In a message delivered to the newspaper Liberation, Clodo said: "We are workers in computing and therefore in a good position to know the present and future dangers of computing and telecommunication."

"The computer is the favourite tool of tyrants. It serves to exploit, to control and suppress."

The Toulouse police also believe that Clodo has been keeping local IBM offices under surveillance since the beginning of March.

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2900 users form Euro club for all makes

A EUROPE-WIDE society for users of all types of computer, called the European Computing Club, has been set up by the organisers of the 2900 Club. The latter already has a handful of members from other parts of Europe and its membership is not restricted to users of ICL 2900 machines. It is intended to be genuinely pan-European and not based on one manufacturer.

The chairman of the 2900 Club, Alan Boyce of Trust House Forte, told Computer Weekly that the first meeting of the European Computing Club would probably take place in about a year, probably at Munich. One likely topic to be covered would be trans-border communications, a subject thought to be of interest to a Europe-wide delegation.

Boyce stressed that the new club had no links with the Conference of European Computers User Associations, CECUA, of which the UK member is the National Computer Users Forum.

CECUA is very much a political body, being recognised by the EEC Commission as the official mouthpiece of computer users in the EEC, while the European Computing Club will avoid political involvement, according to Boyce.

Meanwhile, the 2900 Club is still going strong and has just changed its status to that of a limited company. The next meeting will be on October 6 in London when subjects to be discussed will include linking ICL machines to other makes of computer.

Macroprinters Microprices

Looking for dot-matrix printers costing a lot less than you budgeted for? Stop looking.

These three from Anadex not only offer lower initial cost, but also provide substantial savings on servicing.

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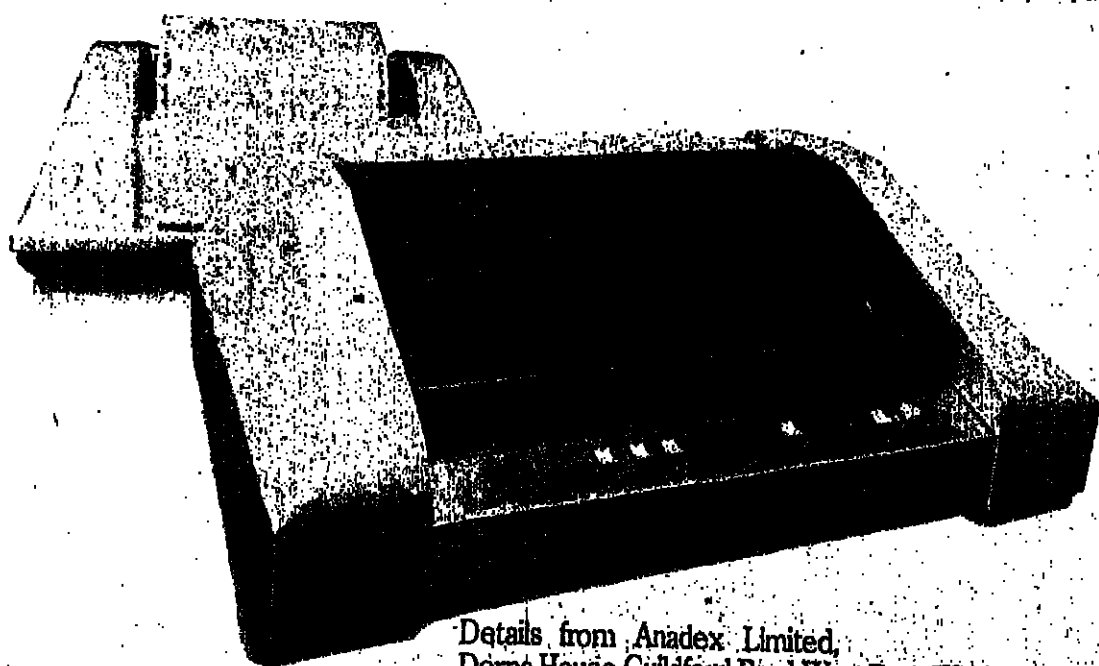
For a little more, the Anadex DP-8000AP Apple-compatible version provides the

required 96-column printing at 134 characters per second, plus all the features of the DP-8000 described above.

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ANNOUNCEMENT
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Following recent coverage in the press on the demise of HPAC Limited, we wish to assure our clients and the industry in general that there is no connection between us and HPAC Limited.

The similarity of company names stems from the fact that "HPAC Limited" was the name adopted by the original Hugh Pushman Associates (Computers) Limited when they were divorced by us as a subsidiary over two years ago. There has since been no financial, marketing or any other real links between the two companies.

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Small firms plan to fight US dominance

AN association of European manufacturers of small computers, peripherals and software products has been formed to help fight off US and Japanese competition, to try to equalise trade barriers with the US, and to make co-operation and trade within Europe easier.

Called the Association of the European Independent Informatics Industry, the group is being launched next week at Hanover Fair with the sponsorship of the European Commission.

Firms from six European countries have already joined including, from the UK, Data Recording Equipment, Plessey GEC Computers and Plessey Telecommunications and Office Systems.

The existing French and West German associations of firms in this field, which is becoming known as "pet informatics", have joined.

persuade the US to drop or modify the Buy American Act which prevents foreign companies from tendering for government contracts. Failing this, Willis said, the EEC should retaliate with a Buy European Act. The group also hopes to persuade European governments to accept each other's safety standards.

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Yoghourt goes better with chips

"The savings and opportunities provided by the introduction of our new system are enormous." That's the view of Fred Finlayson, Manager of Management Services with Express Dairy Foods. The new distributed processing system is one of the most ambitious in the country — with a total of 27 minicomputers serving 13 factories and 27 distribution depots. It will help Express get more dairy goods — like its Eden Vale products — to the right place at the right time.

Data Logic is implementing the project under a turnkey contract. That means software development, supply of computers and project management. It even, in this case, meant the development of special communications hardware based on microprocessors, for a more economic data network and fewer transmission errors.

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Downtime

by Chad

Twisted comms

WE are all in the information business, right? Communication is what computers are all about, agreed? Then why do you suppose so many of our colleagues seem to treat writing as a sort of latter-day Battle of the Somme?

I publish an occasional column of gems of obfuscation, but for a long time I haven't seen anything as baffling as this piece, sent to me by Mike Taylor of Stewart Wrightson Management Services. It is from International Business Equipment, and is by one Linda Tilton, a vice-president of Format Systems Inc. of Chattanooga, Tennessee.

Word processing centres have growing pains. There are five principal causes of growing pains: individualism in operators, condensation of machine models, originator-operator ratio, personnel turnover and expansion of the bureau. When the centre is small, these areas can be handled informally and solution shared verbally. Later, the need to improve discipline and communicate efficiently becomes necessary.

I am glad to see from the last sentence that Ms Tilton agrees (I think) with the principle of what I say, even though she

does not practice what she preaches. Let me say right away that "expansion of boilerplate" is not as obscure as it sounds; she is not talking about trouble with the central heating. Boilerplate letters in word processing jargon are those made up of pre-stored standard paragraphs.

What really baffles me is this "originator-operator ratio." Do you suppose it has something to do with the typists playing transistors while they work? Have we got pirate word processing centres with that sinking feeling like Radio Caroline?



"Welcome aboard Spam Computers - would you like a watch or a cheque as your leaving present?"

By any other name

READERS may sometimes have been puzzled at the way IBM code names for forthcoming products mysteriously change and evolve. For example, the Whitney megajumbo disc drive is now confusingly being called Coronado by the cognoscenti, while the Intrepid streaming tape drive has changed to Ocatillo. The four or five models of the H-series, or should I say, Adirondack, have had at least ten different model names: Iroquois, Marcy, Sentinel...

I can now reveal to Downtime readers that the reason for all this confusion is really quite simple: as soon as an IBM product code name leaks out and starts to appear in public print, the company's resident spoliator goes and changes it.

Now that that fascinating fact - revealed by a former IBM insider - has also leaked out, the said resident spoliator will have to put in a spot of overtime working out a new rule to replace the one I have just stated.

Spooky

A READER, Alex Goodall, has pointed out to me this job advert in the Observer, placed by Westinghouse Electric Systems' Software Engineers. Applicants should have a degree in Electrical Engineering and appropriate experience... Other technical degrees such as Applied Physics will be considered.

Mr Goodall comments "If such appointments are at all commonplace, it could explain the irrational behaviour of many computer systems."

Even though "participants experienced difficulty in using decision tables" the PROCEDURE TABLES' performance was found to be significantly superior to that with the other types of control structures, with perfect performance found in almost all conditions over all

GILB'S MYTHODOLOGY

Towards a natural menu-driven language...

I WOULD like to share some interesting results of recent IBM research into programming and program design. Here I can give a brief idea of the many ideas and their background, but the report is available on request.

The one I refer to here is, Lance Miller's Behavioral Studies of the Programming Process (IBM RC 7387, 72 pages). The research was performed at the IBM Thomas J. Watson Research Labs in New York by a large research team.

To get some overview first: the report has something to say about increased naturalness of the person-to-computer interface, the effectiveness of various logic structures in logic design and programming - effectiveness for understanding by people; new types of program maintenance documentation; and automated aids for design specification.

The research was funded by the US Office of Naval Research's engineering psychology programmes. Let us, for the purpose of this column, concentrate on the results and recommendations.

"The most significant finding from the command usage analysis was that text-editing commands accounted for over three-quarters of all the commands issued... This might suggest that much of the editing is due to correction of errors which more powerful language analysers could detect and help pinpoint accurately."

"We recommend that 'semantic checking' facilities be developed for use within language processors to aid in the detection of these conceptual errors, paralleling the facilities for detecting syntactic errors."

The study ascertained that "control specification" - that is, program decision points - are a "high-probability difficulty factor."

They tested a number of alternative methods of expressing program control being made in the computer sciences literature in favour of the IF (then ELSE) structure. "We found that this was the most difficult technique to learn and to use correctly."

The constructs found superior were called BRANCH (one-dimensional lists) and FLOW (graphical specification).

Next a "PROCEDURE TABLE", similar to the above mentioned BRANCH structure, was tested. Its structure is "similar to a (90-degree rotated) decision table."

problems, and further the provision of this tabular structure was of key importance in assisting performance (see Table 1).

The Miller report recommends "that a structured technique like the procedure table be used for program coding" under certain conditions which they "estimate that a large proportion of the programming tasks in businesses, governmental services, and the armed forces, would meet."

They also note that a "menu" of conditions should be provided by the system, rather than

A six-level indented structured program was more naturally expressed as: "PACK LARGE RED DECORATIONS J2 TO A BOX. MAKE UP A TOTAL OF 200 BOXES. STOP AT 5:00 IF NOT FINISHED. BE SURE TO PACK ONLY THE UNBROKEN ONES."

Their conclusion is that "a language interface based on a natural but considerably restricted syntax and lexicon might well be an acceptable and preferred alternative to the present programming-like interfaces."

Database inquiry languages were examined as well as proce-

LABEL	CONDITIONS	ACTION(S)	GOTO
A1	TEMP TOO LOW?	PUSH "HEATER ON" AND WAIT 1 MINUTE	A1
		PUSH "HEATER OFF" AND WAIT 2 MINUTES	A1

Table 1. The procedure table concept.

allowing people to specify conditional logic in their own terms directly.

The reason for this was the discovery that many errors were due to natural human logic specifications which could not be correctly interpreted by the relatively inflexible database query systems or compilers.

The menu is a way of informing people about valid language constructs, without training them in advance, and without trying to solve the problem of all frequent human variations of logic specification.

Moving into the sector of "natural language programming and communication" the researchers discovered that people specifying their problems for computer solution, even half of the trained programmers involved, "were more concerned with data manipulation than with control factors, preference for aggregate data operations rather than iterative, for example, 'Find all those who...'"

To make a long story short, contemporary program logic, such as structured and indented GOTO-less algorithms, are not the natural way of expressing program logic.

This confusion between



Tom Gilb is an independent consultant, lecturer and author on computing topics.

systems architecture in general and logic specification, according to fixed strategies, is widespread in our profession at the moment. Miller and his colleagues are almost forgiven for their temporary lapse in mentioning logicware specification techniques under such a broad heading as Design Philosophies.

Some specific software design aids are recommended. The most interesting suggestion is the hierarchical program editor which is described in great detail and warmly touted as a fundamental solution.

The authors point out that most program and pseudo-code editor systems are essentially sequential in nature, but that a facility for inquiring and modifying indented hierarchical text would "offer the greatest potential for facilitating the design process". They also mention that they have already developed a prototype editor, although it is not optimised.

There is a section investigating behaviour related to maintenance programming which examines the effects of new types of graphic or tabular documentation, to help programmers understand programs. The favoured solution was a matrix of intra-module interaction, but none of the results was conclusive.



Calcomp throws in anti-trust towel

AFTER nearly seven years of struggle, Calcomp has effectively thrown in the towel in its anti-trust contest with IBM. Calcomp's new parent company, Sanders Associates, has decided not to appeal to the US Supreme Court against last year's decision by the Ninth Circuit Court of Appeals that confirmed the verdict in favour of IBM passed in the original trial more than three years ago.

The Calcomp case was originally filed in October, 1973 and became the obsession of Calcomp's chairman and chief executive of that time, Lester Kilpatrick.

The case came to trial in the Los Angeles Federal District Court in November, 1976 but three months later presiding judge, Ray McNichols, directed the jury to accept an IBM motion that there was no case to answer.

Calcomp's \$300 million action had charged IBM with unlawful monopolistic behaviour and involved the IBM compatible peripheral market which was a major source of business for Calcomp in the early 1970s.

Following Calcomp's defeat Kilpatrick was voted out as chairman (CW, April 21, 1977). Last November he began an action to sign the takeover of Calcomp by Sanders under the terms offered by Sanders, but failed to stop the acquisition which was completed on February 20.

Calcomp is now mostly devoted to computer graphics having dropped out of the IBM compatible peripheral business some years ago and having sold its operation manufacturing big OEM disc drives to Xerox.

Calcomp dramatically extends the range of graphics pro-

ducts already manufactured by Sanders Associates.

Sanders dropped its own \$255 million anti-trust action against IBM early in 1977 in return for a \$10 million development contract from IBM. The Sanders case charged IBM with damaging its one-time subsidiary, Sanders Data Systems, by temporarily withdrawing support for 2260 video terminals.

IBM's first major anti-trust victory was against Telex five years ago and in 1978 the Memorex action against IBM ended in a mis-trial after the jury failed to reach a unanimous verdict. The judge then issued a directed verdict in favour of IBM.



Systime moves into new Dublin offices

Systime's marketing company in Ireland has moved into new Dublin premises which were opened earlier this month by the director-general of the Irish Management Institute, Ivor Kenny. He is seen here flanked by the two top men at Systime, managing director John Gow (left) and chairman John Parkinson. The new premises will house 20 staff whose activities will include supporting the 14 customers picked up by Systime in Ireland since it set up there two years ago. Customers for Systime's turnkey systems include the Irish Times and Shell Chemicals.

Lottery boost for Burroughs

THE French Loto National, a division of the national lottery, has given Burroughs one of its biggest European orders. Two large-scale B7800 mainframes are to be installed, one in Paris and one in Marseilles to capture "jeux" as they are made in real time. Loto National is a gambling game in which the player buys a card, writes down his own numbers and hands it back to the seller, usually a tobacco-

Special terminals are to be developed by CSEE, Compagnie de Signaux et d'Entreprises Electroniques and, if a pilot project with 100 terminals proves successful, it is planned to equip all 6,000 points of sale.

Speech I/O 'will soon be widespread'

HOW would you feel if the only way you could communicate with others was to type letters and watch them appear on a display? This question was posed by Eric Garen, vice-president of Integrated Computer Systems, when introducing a four-day training course on speech recognition and synthesis. The course opened in the US this month and moves to Europe in May.

Garen added that people tolerated this with machine communications because machines were fairly new and very common, but progress in three areas in the last three years was beginning to make voice input/output available, and it would soon be widespread.

The three areas Garen mentioned were improvements in pattern recognition and digital signal processing; VLSI technology and the understanding of speech recognition and synthesis techniques. The course, aimed at design engineers and programmers, costs £470. It covers the techniques involved such as digit-

signal processing and pattern recognition and also reviews currently available hardware.

General Electric, Philips and General Motors are among the firms which have asked ICL for courses in this area, and several universities, IBM and Texas Instruments have advertised for experienced voice research workers.

Bell Laboratories has a system whose trial applications include an automated information service. Quasar, the consumer electronics division of Motorola, plans to launch by the autumn a microwave oven which will speak to the user.

Allen Bradley and Cincinnati Milacron are developing voice synthesis systems to enable machine tools to make announcements.

Talks between Texas Instruments and General Motors may result in "autocratic autos" synthesising such remarks as "Are you wearing your seat belt?" "Aren't you driving a little fast for these weather conditions?" and "What's that I smell on your breath?"

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10 years ago
From Computer Weekly
of April 16, 1970

A FURTHER setback to the hopes of European co-operation in the computer field occurred when Siemens and AEG-Telefunken said they would be setting up their own co-operative venture...

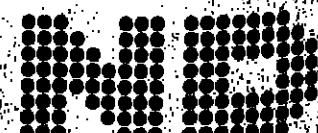
SE Labs launched a range of alphanumeric video terminals after a £1 million investment in the project. The Northern Ireland Ministry of Finance signed an order worth £20,000 for a second ICL 1904A with random access... A new UK firm, Database Ltd, formed to make and market small computer systems, was a subsidiary of import and export merchants William Jack and Co... The trade association Comba decided to form a section for software houses... ICL had won 20 more orders for 1990 and System 4 kit from local authorities during the previous two months.

LAUNCH

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SOFTWARE FILE

Ansi looks at real time and graphics for Fortran

THE technical committee for Fortran under ANSI X3J3 is to consider real time and graphics applications as part of the Core Plus modules scheme for the language.

Links with US and international committees involved in real time Fortran applications continue and a task group for multi-tasking is to be formed.

It will work on standards in the process control area in close co-ordination with the Instru-

ment Society of America and the European Workshop on Industrial Control Systems. There is also to be a formal link between the committee and the ANSI technical committee on graphics.

The next ANSI Fortran spec is expected in 1985. Anyone interested in any of the areas mentioned above should contact Loren Meissner, CSAM-508, Lawrence Berkeley Labs, Berkeley, California, 94720, US.

Puzzler

1	2	3	2	1
3	4	5	4	3
2	5	2	1	4
4	1	3	4	5
2	5	1	5	3

THE problem here is to slice the square into five five-cell pieces, such that each place contains all five different numbers. All divisions must follow the grid lines, and each piece must be "properly" formed — ie cells joined at one corner point only are not allowed. See page 22 for solution.

On the subject of consecutive squares (Puzzler, March 20), J. R. Halse makes the point that the smaller of the two square roots involved can always be determined simply by dividing the difference by 2.

● Puzzler is blushing with embarrassment. In last week's problem, involving the relocation of a series of counters his fingers stumbled on the typewriter and some of the instructions were left out. The third sentence should have read, "Each move must consist of picking up a counter, moving it left or right over exactly three other counters, which need not all be in the same cell, and finishing in an empty cell." Sorry.

Make an appointment with London's new Micro Technology Centre

Right in the heart of London, there is a permanent micro exhibition where you can obtain professional advice and buy micro hardware and software.

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SUPPLIERS TO BRITAIN'S COMPUTER INDUSTRY

New aids for finite element analysis

THE technical computing bureau SIA and the University Computing Company have both announced extensions to their facilities for finite element.

SIA recently released a new version of its Finite Element Modelling and Analysis Language for Engineers, Female, designed to act as a interface between the engineer and the analysis package so that models can be defined and results analysed, and finally integrated into the design procedure.

Among the new functional modules added to the Female library is Automesh, which creates meshes from simple point and line definitions.

At the same time SIA released Update 67 of Ansys, a system for structural and heat transfer analyses which can be used through Female, which now includes a procedure which calculates critical loads and Eigenvalue buckling analysis. The systems use Tektronix and Calcomp graphical output facilities.

The UCC products Femgen and Femview are pre and post processor programs in the structural analysis field which have just been made available to UCC's European network.

Femgen is a finite element mesh generator using the "top-down" approach to analysing a structure in terms of points, lines and surfaces. Femview provides aids to visualisation and helps to interpret the volumes of data produced by finite element analysis.

Going Forth to win

THE high level computer language Fort was used by Sinar Agritex, winner of the recent NRDC-sponsored British Micro-processor Competition (CW, March 27) to develop both the hardware and the software on its award-winning grain and seed moisturemeter.

Fort is a structured programming language which permits interactive programming, and according to the project engineer at Sinar Agritex, speeded the development stage of the project considerably.

THE City-based software house, Harrison Computer Services, has won a contract in the US worth \$180,000 to aid in the development of a real time banking system to be installed on a NCR Criterion for a Middle East bank. The contract was awarded by Florida systems house Anacom Inc.

A SYSTEM written by surveyors and engineers to streamline the job of hand-plotting survey plans and contract drawings is available from Eclipac Computer Services of Bucks. It runs on a Wang 2200 VP with a video terminal and flatbed plotter, and costs a minimum of around £20,000.

THE shared tape allocation manager STAM marketed by Software Implementation has been enhanced to automate the allocation of shared mountable disc devices at IBM installations. The product aims to reduce human error by relieving operations staff of the task of tape and disc allocation in multi-CPU installations.

UK debut for Aussie system

A FINANCIAL and business control system developed in Australia is to be marketed in the UK by Business Management Services of Birmingham. The system, called Fincontrol, is available on IBM System 32, System 34 and Sys-

tem 3, and runs in batch mode or interactively on the System 32. It was developed by Business Model Systems, Kangaroo Point, Australia, and deals with a range of applications including budget preparation.

Amdahl boost for I.P. Sharp

THE APL time sharing service provided by I. P. Sharp has been upgraded following the delivery of an Amdahl V8 to replace one of the Amdahl 470/V6-11's, installed only a year ago.

The second V8, installed in 1979, was intended to cater for the company's growth until the spring of 1981. However, increased demand for APL resources in Europe and North

America has led to early expansion of what, according to I. P. Sharp, is already the largest APL facility in the world.

The new Amdahl V8 is said to be capable of almost twice the processing power of the V6, and the main memory of the facility has been increased by four million bytes, anticipating further increases in demand over the next year.

Workspace aids for APL programming

APL specialist consultancy Cocking and Drury has introduced three APL workspace aids, WSDOC, CONSCHK and WSSEARCH. In response to a growing demand for APL programming, the products aim to provide the sort of support that programmers take for granted with more explicit high-level languages.

APL's flexibility and conciseness brings its own problems when it comes to debugging and documentation — especially when dealing with programs written by other people, as, according to enthusiasts for the language, APL not only caters for individual flair but encourages it.

Using WSDOC, an existing APL system can be documented prior to modification or maintenance. It lists all the functions and variables in an APL workspace, defining a function and the tree to which it belongs, and if necessary producing a full reference listing.

CONSCHK compares two workspaces and identifies the differences between them, finding functions and variables which are present in both in different forms, or present in one and not the other.

WSSEARCH performs global searches and replacements for given text strings or expressions.

A package consisting of five workspaces including WSDOC, WSSEARCH and CONSCHK is available from Cocking and Drury with full documentation and unlocked code for £1,000 plus VAT and an annual maintenance fee.

First in UK

THE UK arm of Scientific Time Sharing, APL-Plus, is running the first installation of APL-Plus VM on an IBM 3031 at Roneo Vickers, the office equipment suppliers. APL-Plus was made available for in-house use over a year ago (CW, January 18, 1979).

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PEOPLE and EVENTS



Senior appointments at Data Logic

WITH the restructuring of Data Logic's professional services division, several senior appointments have been announced. This follows the company's acquisition last year of Square One Computer Services.

The appointments include those of Richard Greengrass and Robin Davies who both become regional managers.

Derek Alway, a co-founder of Square One, also becomes a regional manager and Jim Philip is appointed business development manager.

Another co-founder of Square One, Paul Hill, assumes the position of services manager.

Frank Patterson has become major accounts executive with Vydec, part of Exxon Information Systems.

Steve Gardiner has been appointed chief engineer with Base Ten Systems, where he will be responsible for all aspects of development and design engineering. He has been with the company for four years, his most recent position being that of principal design engineer.

Ian Stewart, formerly a salesman with Systime, has been chosen to head the launch of Qantel computer systems in Scotland for General Computer Systems.



Honeywell to sponsor concert

THE first performance of a new flute concerto by young British composer Nigel Osborne is one of the highlights of a South Bank concert to be held on May 28. The concert is sponsored by Honeywell Information Systems.

Other works to be performed at the concert include Symphony No 22 by Haydn and Flute Concerto No 2 by Mozart. The concert will be given by The City of London Symphony conducted by Richard Hickox.

Andy Lowe has been appointed sales manager for Monotype Communications' new hotel division. Lowe has been involved with many aspects of the catering industry, and while studying for his degree in business administration made a study of marketing strategies of UK electronic companies in association with Butler Cox and Partners.

Neil Kennedy has joined Compeda as computer manager. He was previously systems manager at the Science Research Council.

John Lawson has become data centre manager for GMS Computing. He was formerly in charge of GMS' technical support.

Ian Skelly has joined CMC's technical support division. He formerly worked for ITT.

DIARY

APRIL 23

The European Commission's Systron machine translation system. BCS Natural Language Translation Group, King's College, London, 18.00.

Towards a branch-and-bound algorithm for the one dimensional trim problem. BCS Mathematical Programming Study Group, London School of Economics, London, 18.30.

APRIL 24-25

The applications of process computers in the oil and gas industries. BCS Process control specialist group, Walford Hotel, London, 10.00.

APRIL 25

Participative design — a constructive appraisal. BCS Human Aspects of Computer Usage Specialist group, Bloomsbury Centre Hotel, London, 08.00.

APRIL 30-MAY 1

IBM CUA Series 1 group. IBM Havant and Royal Beach Hotel, Southsea, Tel 01-351 1843.

MAY 12

Visit to a computer centre, BCS

Cheltenham and Gloucester branch. Details from committee members. Members only.

The future of mainframe computing. BCS East Anglian branch. Red Lion Hotel, Norfolk, 18.00.

MAY 14

Display systems in TV productions. AGM, BCS design group. City University, London, 14.00.

Computers and society, and AGM. BCS Bristol branch. St Vincent Rocks Hotel, Clifton, Bristol, 18.15. AGM and Sherry party. BCS Edinburgh branch. Heriot-Watt University, Edinburgh, 17.30.

MAY 15

Computer arts review and AGM. BCS Coventry branch. Burnt Post Hotel, Kenilworth, Coventry, 18.30.

MAY 21

Interactive programming in Cobol on the IBM 8100. BCS Cobol Specialist Group. Polytechnic of Central London, London, 14.15.

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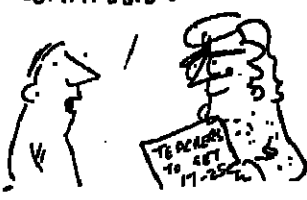
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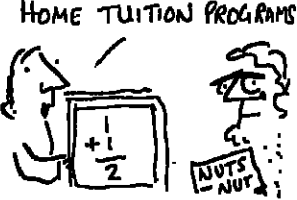
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by Don

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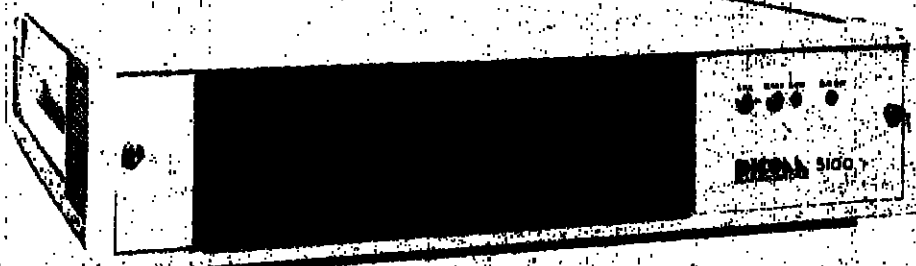
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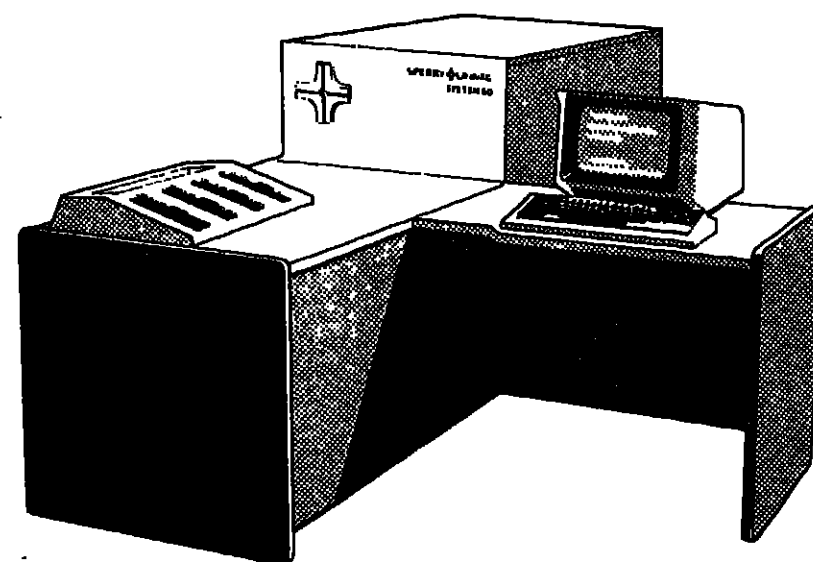
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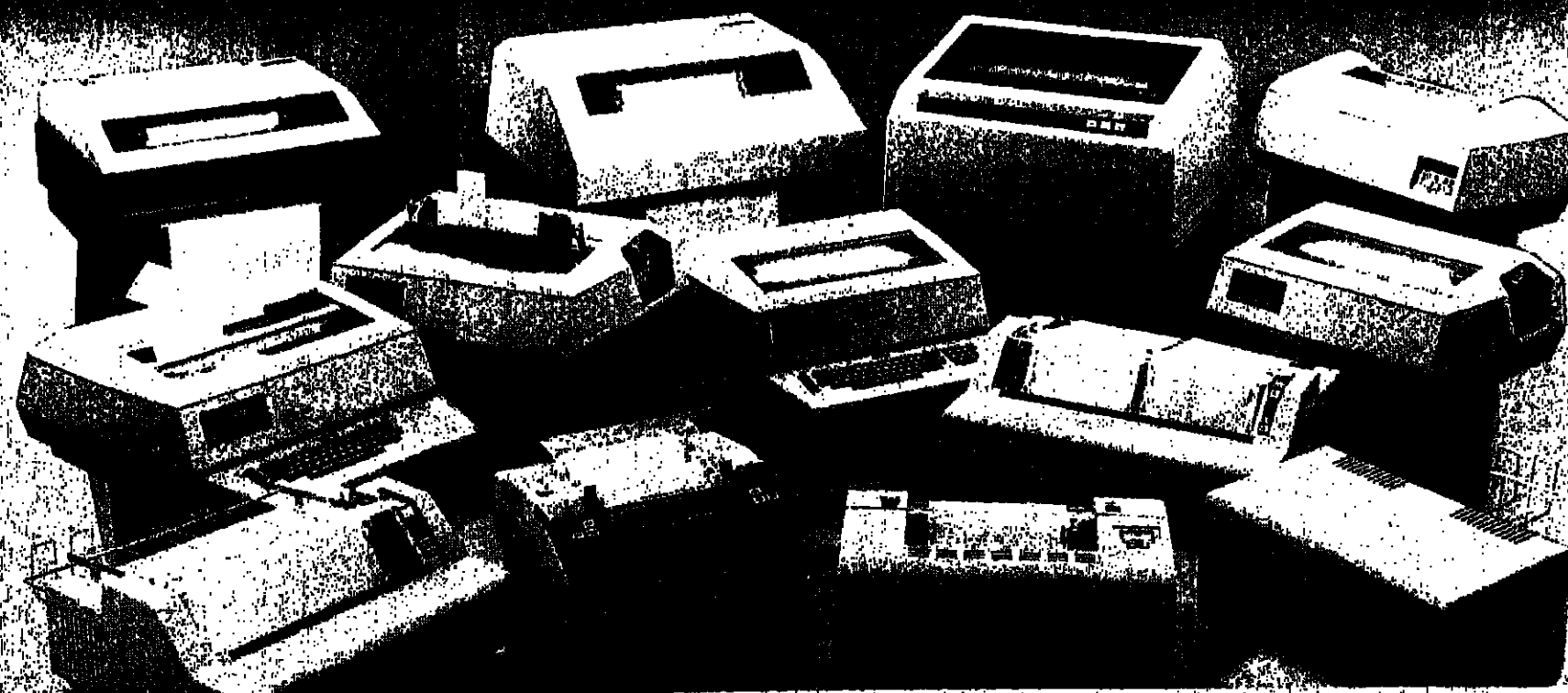
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All offering superb reliability and uniform print quality at reasonable cost.

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OP SPOT

Courses that suit both operator and installation

IT is an unfortunate fact of the typical operator's life that he gets very little in the way of formal training and courses.

He is expected to acquire his skills in the computer room by watching and putting questions to his senior and more technically able colleagues.

The typical operations manager isn't much help, either. On requesting some formal training, the operator is told that the site can't afford to give him time off and that the manufacturer's courses don't really fit the installation's needs.

What these managers often fail to mention is that certain companies do run courses which meet the needs of operator and installation alike.

BOC Datasolve, for example, provides a series of courses relating to IBM and ICL hardware and software. Alan Peck, who is head of operations and software training at Datasolve's customer service centre in Old Park Lane, told me:

"The courses are for customers' staff and our own people. Most of the courses run here at the centre are five days long. We usually limit them to 12 students per course."

"We also do on-site specials — one of our tutors will go along to the customer's site to find out exactly what they need. He'll then spend a couple of weeks setting it up before going back and running it at the installation."

"Then we do a course for beginners. The students get a week's theory, then spend a couple of days at our Oxford Circus site under the supervision of a tutor, learning how to load printers and mount discs."

In the main, however, the Datasolve courses are aimed at staff with experience of working in operations. On the ICL side, they run a 1900 to 2900 conversion course, 2900 basic and advanced, 2900 system control language, and a 2900 telecommunications course will be available from May.

The IBM courses fall into two categories: operations and software. The operations courses lean heavily towards theory, and cover MVS basic and advanced, 370 hardware and software concepts, and an IBM-biased course on TP concepts.

"In the MVS basic operations course we go over the history of operating systems, showing how and why they have developed. We also show how jobs go through the system, explaining about the reader, initiator and writer procedures, and discuss the use of systems commands."

The MVS advanced course covers such matters as the theory of virtual storage, job re-starts, dump cracking and the basics of the IBM Assembler programming language.

"Assembler tends to be the most popular part of the course. It gives the operator a deeper understanding of how the machine works."

The software courses — OS/VS1 job control language, OS/VS utilities and VSM — include more practical work, jobs being submitted via RJE to an Amdahl 470/V6 at Datasolve's site in Sunbury. "OS JCL is our most heavily subscribed course. It includes the punching and running of one, three, five and six step jobs. Generation data groups are included."

"We submit jobs through RJE. The course tutor checks each job before it's submitted to the system."

The centre has six tutors, four IBM and two ICL, who are recruited at technical support and shift supervisor level. In addition to having technical expertise, they must also be able to put ideas across to about 10 people at a time.

Said Peck, "We recruit from the outside as well as internally. Our own courses give us the opportunity for talent spotting if need be."

"Eighteen months or so ago we had trouble finding tutors, but not any more. Now we get people contacting us, asking for jobs. I've got a waiting list of three and they are at shift supervisor level."

Applicants undergo what Peck describes as "a baptism of fire" — they give a test presentation under the discerning eyes of experienced tutors.

Said Peck, "Some people are very articulate in a one-to-one situation but dry up in front of a group. Most people rise to the challenge."

Trainee, or assistant tutors, as the new recruits are called, attend any ICL or IBM courses they need, and go on a presentation course run by the British Association for Commercial and Industrial Education.

Chris Turner, an ICL tutor who has been at the centre for some 18 months, told me: "On the BACIE course they tell you to talk clearly, be as natural as possible and make sure the students understand what you're trying to explain."

The assistant tutor then sits in on a number of courses to watch an experienced colleague.

On the first such course the assistant will observe, on the second he may fill in on one or two sessions, and on the third he might take the students for an entire day.

After four months or so at the centre he will carry out a course of his own, probably under the supervision of a senior colleague. He will be made up to the position of tutor after a year or more.

Turner became interested in training during his days in operations at North Thames Gas.

"We had had several senior operators and a lot of trainees, but no one between those levels. At first I did most of the training hands-on in the computer room. But later on it became more formalised. I find that teaching is a good way of consolidating and adding to

your knowledge."

According to Turner, the tutor tries to find out as much as he can about the students before the course and treats them as individuals.

"You've got to know each student's level of knowledge and what they hope to get out of the course."

The tutor must keep in touch with what's going on in the industry and does so in several ways.

Peck told me, "Every now and again they spend a few weeks working in an area such as technical support. It keeps them in touch with developments and sharpens their skills."



Peck

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by Bernard Allen

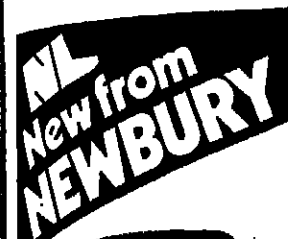
Nowhere to go at tea-break

"It was good to see you telling us operators to take as many breaks as possible during the evening and night shifts (CW, February 14).

"The problem is that we have nowhere, aside from the manager's office, to spend such breaks. What do you think of that?"

So writes an operator who works at a small installation. The day and evening shifts present no problems for the operators — they get some food and liquid refreshment in the public house nearby. But on the night shift it's a choice of bring your own food or starve.

In my opinion, it's important that the operators have somewhere to rest and eat their food. It should be as far away from the noise and bustle of the computer room as possible. Why not ask to use the canteen facilities on evenings and nights as well as the day shift?



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MICRO NEWS

Texas introduces a talking home computer

TEXAS Instruments has introduced its talking home computer, taking its first step into what the company sees as the "home information systems revolution."

The TI 99/4 microcomputer is planned to "move the mystique" of computing that exists in the consumer market.

Following its initial launch in the US last year (CW, June 14, 1979), the slender 99/4 has now been officially introduced on to the UK consumer market, with several accessories, including the speech synthesis peripheral, and a set of TI Basic software command modules.

These solid state command modules, which cost between £17 and £45 depending on the number of ROM chips required, allow almost anyone to operate the system successfully.

Mike Lurch, marketing manager of TI's European consumer division, claims that even children as young as three or four could use it.

Various software projects including meal-planning, health exercises, lessons in grammar

and financial planning will be available in the module form. According to TI the complete set meets the interests of the UK market. Top of the list with highest interest value is education, followed by entertainment and personal and home management.

The titles immediately available include Pre-school Early Learning Fun, Beginning Grammar, Number Magic, Household Money Management, Personal Record Keeping, Statistics, Diagnostic, Video Games and Video Chess.

Talking originates from a speech synthesis module which holds a general vocabulary of 373 words. Extensions to this will be available on plug-in modules holding specialist words like engineering and medical terms.

For a basic cost of about £95, sentences are formed from strings of words producing a quality of sound that leaves room for improvement. The first module to use speech, Early Reading, will be available soon. Meanwhile the system can be programmed to talk to the user.

Other accessories include an RS-232 interface for £150, which provides two V24 ports each with a programmable baud rate and choice of format. Floppy disc storage consisting of a disc controller and up to three 90K-byte mini floppy drives, will be available in the summer.

For a cost of £990 the system comprises a 14in colour monitor, which can be used as a basic television, and the 99/4 console, which contains 16K of RAM, 26K of ROM storing the operating system, a sound

generator and an equation calculator.

An impressive overall effect is created with the 16-colour graphics capability that enables the user to create his own characters and animated displays, and the music and sound effects used throughout the command modules.

Tape interface for Z2-H

INTERFACING to enable the EMI 8300 magnetic tape drive to be used with Cromemco's Z2-H S100 microcomputer system is now available from Benchmark Computer Systems of St Austell, Cornwall.

It enables back-up copies to be taken from the Winchester disc drive of the Z2-H, and provides a capability for off-loading pro-

TV games Top 20

WAR and sport appear to be Top of the Pops in microprocessor-based TV games. Atari, distributed in the UK by Ingersoll Electronics, has compiled its own Top Twenty of best-selling cartridges on the UK market. Backgammon, Superman and Video Chess, which have only been available for three months, seem to be catching up quickly.

Ray Brent, Ingersoll's director and general manager, claims that since the company gained the franchise about a year ago, Atari has become a "techno-cult" in the UK.

cessing from a mainframe on to a remote standalone system.

The tapes are compatible with a wide variety of existing computer systems. Typical price of a system comprising 64K-bytes of RAM, a 10-megabyte hard disc drive, two double-sided floppy disc drives, the magnetic tape drive and printer and VDU peripherals is about £14,000.

Macroprinters Microprices

Looking for dot-matrix printers costing a lot less than you budgeted for? Stop looking.

These three from Anadex not only offer lower initial cost, but also provide substantial savings on servicing.

For around £500, the Anadex DP-8000 provides 80-column printing at 112 characters per second, 84 lines per minute; switch-selectable baud rates from 110 to 9,600; 100M character head life; three standard interfaces (RS-232C, current loop and parallel bit); vertical tab, form feed, skip-over perforation controls; adjustable sprockets for any paper size; self-check diagnostic test facility; 1K character buffer standard with 3K option.

For a little more, the Anadex DP-8000AP Apple-compatible version provides the

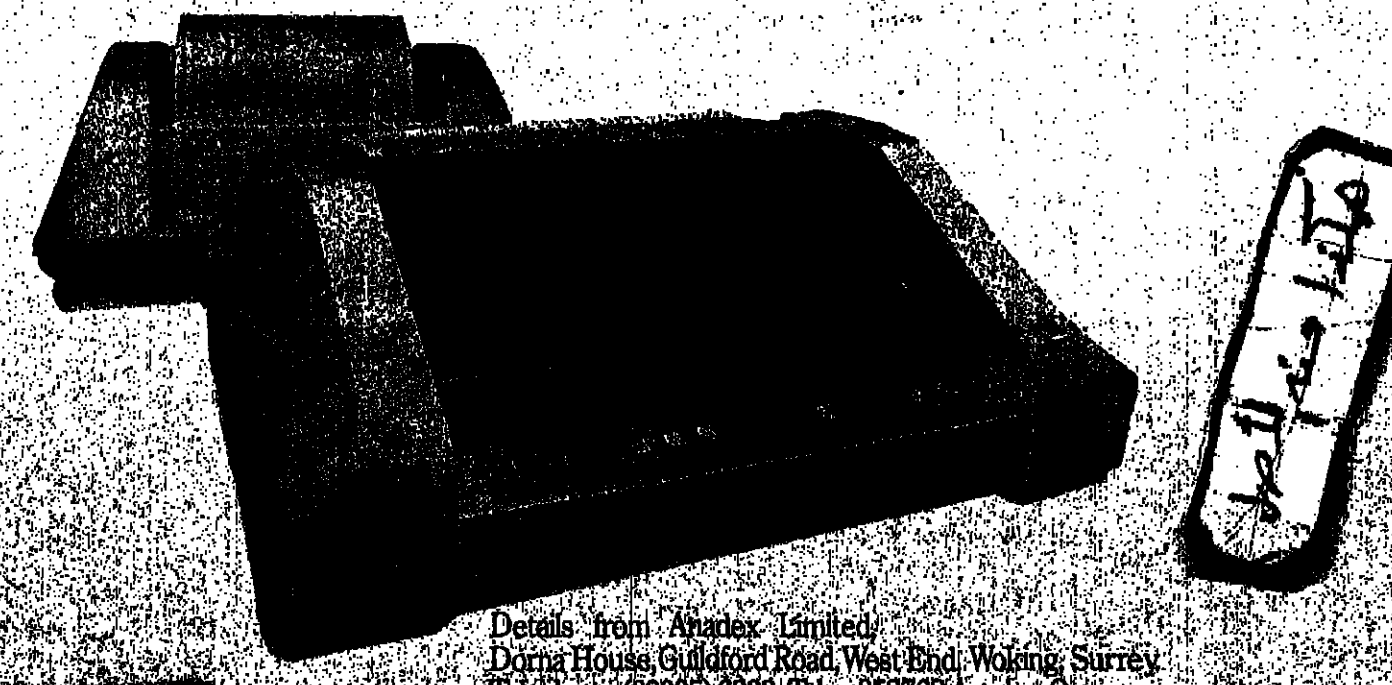
required 96-column printing at 134 characters per second, plus all the features of the DP-8000 described above.

At less than £900, the new Anadex DP-9500 offers up to 220 character line width, with maximum printing speeds of 200 cps or 200 lpm; 150M standard or 650M optional character head life; 11 x 9 dot matrix capability; 'look ahead' bi-directional printing; 500 character buffer with 2.5K option, full graphics potential; communications control capability; vertical and horizontal tabs.

You won't find a better bargain.



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PULL THE PLUG ON THE INFORMATION DRAIN!

YOU ARE FAILING ME!

HAD A PROBLEM WITH TEKNIK... WE'RE NOW USING ROBOTS. THEY MUST WORK!

I TOLD YOU ROBOTS WOULDN'T WORK. THEY'RE NOT SHOWING INITIATIVE IN RESPONDING TO REMOTE GALACTIC BUGS.

WE ARE IN THE COSMIC ****!

MISSION CONTROL, SLOUGH...

HELP!!

AT BEE-ARR'S RECRUITMENT

I'M JUST GOING TO THE OFFICE DEAR. I'LL BE BACK IN ABOUT A BENNOSSECOND.

TICKETS

AN AWAYDAY TO SLOUGH PLEASE.

WHY DOES BEE-ARR KEEP MEDDLING? THERE'S NO HOPE NOW.

WOW! THE ATTRACTION IS IRRESISTABLE!!

BEE-ARR ALWAYS GETS THE MESSAGE ACROSS.

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able as being of equal value. Applicants must have completed successfully at least one major project involving on-line and/or data base techniques.

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Assembler-Minis & Micros

Systems Consultants and Technical Analyst/Designers with 5-9+ years experience in programming are sought by this leading London-based Systems House and Consultancy. Your career should exhibit a bias towards software or technical computing eg telecommunications, radars, etc. and a solid background in Assembler or machine code is essential. The work will be of interest to those currently at the System Designer level, who have either consultancy or team-leadership experience. Familiarity with any of the following fields of expertise will

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Our Client, based in Surrey and Switzerland, requires high-calibre Programmer/Analysts with experience in telecomms and message switching on minis. You will have had a sound background in Fortran/Assembler in a manufacturer/systems house environment.

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Interesting and challenging opportunities for TIP Internals experts are currently on offer in both Germany and Holland. In neither case is language ability important, since successful candidates will be seen as Technical Consultants and therefore highly respected for their technical expertise and their ability to contribute effectively to solving an installation's TP problems.

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A well established international timesharing organisation which offers intelligent on-site systems wishes to appoint a Sales Executive to concentrate on North-West England.

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Sales Executives - Software Products

London based up to £15,000 package

An international software products organisation wishes to appoint a Sales Executive to take responsibility for the U.K. market.

Candidates must have a sound IBM software background and preferably a proven record of selling services or products in the d.p. industry. Consideration would be given to a software technician who has the flair and wishes to enter sales.

London interviews will be arranged as soon as possible. **Contact: Jim Baker**

IMS Database Consultants

London based to c. £15,000

Our client is extremely keen to meet Analysts, Designers or Project Leaders who can demonstrate a good knowledge of IMS - preferably although not necessarily the full db/dc environment.

The company is a well established specialist consultancy, which has projects in all database areas and can give a committed specialist (or someone wishing to become one) a superb opportunity to gain all-round experience.

Contact: Andy Wright

Systems Consultants

London salaries to £12,000

One of the U.K.'s most respected specialist database consultancies has recently established a new mini-systems division, in order to enter the broader commercial market, and require a number of high level professional staff to help build the business.

Ideal candidates will be well qualified and have over 5 years commercial d.p. experience. Naturally, the ability to lead and establish teams/projects is highly valued but initially in-depth experience of developing a range of commercial/financial systems on minicomputers will certainly be required.

Contact: Andy Wright

Operations Manager

London c. £8,500+

An experienced and able Operations Manager is required by this very large and prestigious organisation, to run a brand new installation.

Currently, the company operates a small d.p. department, running systems on a/b line. The new Manager will initially prepare the ground for a new IBM 4341 - to be installed later this year - and then continue running the site. Ideal candidate will already have experience of the 4300 range, but any small to medium IBM h/w experience will suffice for those able to show first-class management qualities.

Contact: Andy Wright

Analyst/Programmer

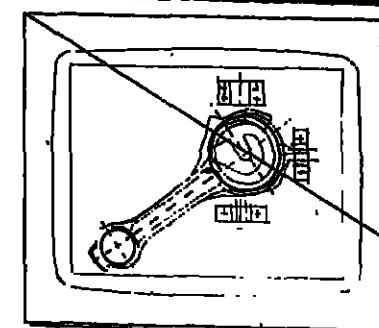
Berks up to \$7,000

A large international computer manufacturer has opportunities for Analyst/Programmers, with about two years commercial (COBOL) programming experience, to join an applications development group. Graduates looking for their first move would be ideal. Above average training and career opportunities. Salary according to experience.

Contact: Jim Baker

JAMES BAKER ASSOCIATES
International Personnel Consultants,
32 Savile Row, London W1.
Tel: 01-439 9311.

Sales Executives Picture yourself in CAD/CAM c£15,000



We have been retained by a leading International supplier in the CAD/CAM marketplace to recruit sales executives in the following areas:

**NORTHERN HOME COUNTIES LEEDS/SHEFFIELD
EDINBURGH/GLASGOW**

This requirement is part of a continuing European expansion programme as a result of an outstanding 1979 performance by their existing sales team.

Ideally the successful candidate will be aged 25-40 (Male/Female) currently selling Computer Systems to industry and able to demonstrate a successful track record. Knowledge of process control, design and manufacture would be a definite advantage.

(Candidates currently within a Pre-Sales Support capacity will also be considered).

By way of remuneration a high basic salary is offered plus an attractive commission scheme, giving first year on-quota earnings of c£15,000, in addition to this a 2-litre GL Cortina is provided plus all private mileage, generous expenses and life assurance are also included.

For further information and an immediate confidential interview telephone: Chris Fry on: 021-236 3781 (24 hour answering service) or: 021-742 1992 (Evenings and weekends)



Specialist Computer Recruitment Ltd

BUSINESS ANALYSTS*

Permanent or contract for early start 6 to 12 months alignment with our team developing and implementing a major IBM mainframe system for our client based in Birmingham.

Experience of IBM equipment not essential, ability to communicate with users is of prime importance. Opportunity to gain experience in New York exists.

Contact: Ian Gold or Ken Pollard on 01-388 0038
Fraser Williams (London) Ltd.
38 Warren Street, London W1P 6PD

Fraser Williams Computer Consultants

IBM 370/148, 370/158, 370/168, 370/178, 370/188, 370/198, 370/208, 370/218, 370/228, 370/238, 370/248, 370/258, 370/268, 370/278, 370/288, 370/298, 370/308, 370/318, 370/328, 370/338, 370/348, 370/358, 370/368, 370/378, 370/388, 370/398, 370/408, 370/418, 370/428, 370/438, 370/448, 370/458, 370/468, 370/478, 370/488, 370/498, 370/508, 370/518, 370/528, 370/538, 370/548, 370/558, 370/568, 370/578, 370/588, 370/598, 370/608, 370/618, 370/628, 370/638, 370/648, 370/658, 370/668, 370/678, 370/688, 370/698, 370/708, 370/718, 370/728, 370/738, 370/748, 370/758, 370/768, 370/778, 370/788, 370/798, 370/808, 370/818, 370/828, 370/838, 370/848, 370/858, 370/868, 370/878, 370/888, 370/898, 370/908, 370/918, 370/928, 370/938, 370/948, 370/958, 370/968, 370/978, 370/988, 370/998, 370/1008, 370/1018, 370/1028, 370/1038, 370/1048, 370/1058, 370/1068, 370/1078, 370/1088, 370/1098, 370/1108, 370/1118, 370/1128, 370/1138, 370/1148, 370/1158, 370/1168, 370/1178, 370/1188, 370/1198, 370/1208, 370/1218, 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PROGRAMMER/ ANALYST

circa £8,500 - Andover (Hants)

Are you ready to make your mark?

Our client is an expanding international company in the marketing and distribution fields and will soon be establishing a new Data Processing Department in Andover (Hants) based on an IBM System 34 with standard applications software.

This expansion affords an excellent career opportunity for a programmer/analyst, with small to medium-sized computer department experience, who is ready to take on full responsibility for initiating, developing and implementing new systems to meet the company's data processing requirements. You must have at least 1-2 years' experience of programming using RPG and have a total of 4-5 years in systems design and development. You should also be familiar with mini-computer software and applications.

In addition to an attractive salary, an excellent benefits package will be offered. Relocation expenses will be paid in appropriate cases.



For more information, ring Roger Kliney in the strictest confidence today on 01-388 6411, or write to him with full career details, quoting ref: CW/1 to: Nationwide Advertising Service Limited, Clifton House, Euston Road, London NW1 2RA

University of Bristol Head of Micro-Processor Support

The University wishes to establish a Micro-processor Support Service within the Computer Centre to encourage and support the use of micro-processors within University Departments. It is seeking an

Experienced Electronics Engineer

to lead this new development in the computing service. The person appointed will be responsible for providing a consultancy service to user departments, the provision of courses on the principles and practical applications of micro-electronics and for ensuring that adequate programming, testing and diagnostic facilities are available to support those micro-processor systems in general use within the University.

Applicants should hold a degree in engineering, electronics or an equivalent qualification and preferably have some experience in the design and implementation of micro-processor systems. Some knowledge and experience of software systems and data communications techniques is also highly desirable.

The salary for the appointment will be on the scale Grade 1A: £5,052-£8,769 p.a. or Grade 11: £8,427-£10,484 p.a. (depending on qualifications and experience). Further particulars may be obtained from the Registrar and Secretary, University of Bristol, Senate House, Bristol BS8 1TH, to whom applications should be sent by 9th May, 1980 (please quote reference EB).

(837)



TRAINEE / OPERATOR / SENIOR OPERATOR

(£3,813-£5,259 inc. plus 12½% two shift allowance - comparability award pending)

Required for 2.75 MB ICL 2980 running under VME/B and GEORGE 3. Experienced operators should have a minimum of 1 year's experience. Trainees should have relevant academic qualifications.

Contact Chris Carter on 01-226 1234 Ext. 218 or 218 for further details or write to Director of Finance, Town Hall, Upper Street, London N1 2UD quoting reference F200. Closing date 1st May, 1980.

OUR JOBS ARE OPEN TO ALL RACES AND BOTH SEXES

(840)

Software opportunities in Holland

in computer controlled telecommunications systems.

Increasing world sales of our public telephone switching systems (for instance a recent large order from Saudi Arabia) confirm Philips' position as one of the world leaders in this field. This, plus enhancements and additions to the range of switching systems, has created vacancies within the international development team working on these systems.

The development effort extends into the field of space and time division switching systems for local and trunk application and maintenance and network management centres. The work will include real time telephony applications, basic operating systems, general support and project generation areas.

That is why we are now looking for a number of

systems designers and systems programmers

to join our headquarters organization in Hilversum, Holland. Systems Designers should have at least 2-3 years experience in real time or control systems software design. Systems Programmers should have at least 2 years assembler language experience or experience in the high-level scientific programmer languages.

Attractive first class salaries will be offered.

In addition fringe benefits include:
— subsidized housing in an attractive area in Holland ('the garden of Amsterdam')
— profit sharing
— full relocation expenses
— settling in allowance
— contribution towards medical insurance costs.

The working language is English. Both permanent and temporary (3-4 years) opportunities are available.

Interested? Do not hesitate to ring or write in full detail to Mr. Harry Constantine in our U.K. laboratory on Malmesbury 2861, ext. 266. Full address: Pye-T.M.C. Ltd., Ekco Works, Swindon Road, Malmesbury Wiltshire SN169NA for further information or write to: Philips' Telecommunicatie Industrie B.V., personnel department, attn. Mr. Ben van Dijk, p.o. box 32, 1200 JD Hilversum, The Netherlands.



Telecommunications

PHILIPS

ABC TRAVEL GUIDES LTD

(a member of IPC Business Press Limited)

require an experienced

DATA CONTROL CLERK

for their Computer Production Control Department in Dunstable. Duties include the setting-up and maintenance of Job Control, work submission via an ICL 7503 terminal and distribution of output. The RJE is linked to ICL 2960 (DME) and 2972 (VME) computers.

Applications are invited from those with I/O or operations experience within a medium/large computer installation, but priority will be given to applicants able to demonstrate their knowledge of JOSTICS and/or SCL.

As one of the world's leading producers of time-tables for the airline industry, much of the work is geared to important deadlines. The ability to work under pressure for extensive periods is therefore essential. There is no shift work and overtime is payable at the usual rates.

The importance of this interesting and demanding position is reflected in the salary, which will be £3,140 p.a. (minimum) from 1st April and there is scope for progress within this expanding organization.

For an application form ring: Pam Brooker, Dunstable (0582) 600111 ext. 274.

Systems Programmers

with or without DEC experience

The Scientific Division of ISA-UK provides a specialised service to the scientific and engineering community as well as a general time-sharing service for companies within the Philips U.K. Group. We have vacancies for systems programmers for our DEC 2060 installation.

● We will pay up to £9,000 p.a. for a systems programmer with experience of DEC 10 or 20 equipment. You will be part of a small team, chiefly engaged in developing both major and minor enhancements and facilities in the software area to meet our users' requirements. As well as advising management on new hardware and software installations, you will carry out the usual implementing, testing and maintaining of manufacturers' software releases.

● c. £8,500 p.a. + training! We are looking for someone with a scientific background and an interest

in data communications with a knowledge of at least one high-level scientific language like Fortran. Although you should have experience of an assembler and time-sharing, you probably won't have had experience of large DEC machines, but we are willing to train the right person, so that you can become part of the Philips' team which keeps it years ahead.

As well as good working conditions in Croydon - and we will help you with relocation expenses - we offer 5 weeks holiday, pension scheme, sports and social club and subsidised staff shop with all the range of Philips' products.

Want to learn more? Ring Mike Endecott today for an application form and further information on 01-888 7766 or write to Val Apps, Divisional Personnel Officer, Philips (ISA-UK), City House, 420/430 London Rd., Croydon CR9 3DT.



Information
Systems and
Automation

Simply years ahead

PHILIPS

Computer Services Sales

London

Sussex

Manchester

c. £15,000 + Car + BUPA

Unilever Computer Services employs some 700 data processing professionals, and is one of the top three computer services companies in the United Kingdom. It has affiliations with a similar major U.S. company, and as part of the Unilever Group it enjoys the financial backing of an organisation which has an annual turnover of around £10,000,000,000.

Unique within the industry U.C.S.L. provides computer services based on a total range of capabilities; main-frame processing, R.J.E., time-sharing, on-site minis, network facilities and applications software development. Integrating and developing these services is one of the largest and most professional customer services groups existing in Europe.

Since 1975 U.C.S.L. has enjoyed a fivefold growth. To maintain this performance the company is now seeking to employ additional experienced computer industry sales professionals. These individuals must have the ability to develop existing accounts and

the energy and talent to generate and negotiate new business contracts at the highest level.

Successful applicants will have a thorough knowledge of computing facilities and an understanding of their application to a wide range of business requirements. They will be capable of working with and motivating high calibre technical support personnel.

The remuneration package offered is second to none with a high base salary, a generous commission scheme geared to realistic quota levels, free BUPA membership and a company car.

This is a real opportunity to join a company whose plans for success in the 1980s are based on a unique mixture of financial security, technological innovation and the continued adherence to a proven, successful business philosophy. For full information telephone Kevin McCourt or write with brief details quoting reference 3102. All applications will be acknowledged and treated in the strictest confidence.



UNILEVER
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123, New Bond Street, London W1Y0HR 01-408 1670

NORTH WEST

**MERSEYSIDE
COMPUTER SELECTION** c £10,000 + Benefits
A major DP user wishes to appoint a specialist at a senior level. The position will entail large hardware styling, selection and evaluation, together with constructional supplier liaison. The ideal candidate will have undertaken a similar role on either large IBM or HONEYWELL hardware.

**LAKE DISTRICT
CHIEF PROGRAMMER** c £7,000
This fast moving company is seeking a programmer with a sound applications background, together with system systems/technical support experience on mini or micro hardware. The position will entail staff supervision and user support.

**NORTH CHESHIRE
SENIOR ANALYST** c £7,500
Our client is seeking an Analyst with over 2 years general commercial experience related to a programming background in COBOL. The job will entail considerable user contact/design and experience in this area is sought.

**LIVERPOOL
SYSTEMS PERFORMANCE** c £10,000 + Bonus
A major organisation is seeking a professional person to undertake a systems performance role. Experience of developing real-time systems on mainframes with preferably monitoring/simulation/tuning skills. This is a senior position with considerable scope and responsibility.

**MERSEYSIDE
SENIOR ANALYSTS** to £8,500 + Bonus
Our client is involved in large scale systems development utilising both mini and mainframe hardware together with sophisticated on-line data-base software. They require mature staff with at least 2 years significant analysis experience.

**MANCHESTER
SYSTEMS ANALYSTS** c £6,500
Large IBM user seeks a number of young analysts who have over 12 months systems experience together with a programming background. Systems under development are both advanced and technically challenging.

**MANCHESTER
SYSTEMS CONSULTANT** £6,000 + Bonus + 1600GL
Our client wishes to appoint a consultant who will undertake user and sales support. You should combine at least 12 months COBOL together with some analysis experience, and be of an outgoing personality.

**MANCHESTER
SYSTEMS ANALYST** to £7,500
This manufacturing company require an Analyst with a wide background of manufacturing systems including production control applications. ICL 1800 experience is desirable.

**NORTH CHESHIRE
SENIOR ANALYSTS** to £7,500
This organisation urgently requires professional staff with over 2 years commercial experience. A knowledge of large BURROUGHS hardware and DMSII design is a distinct advantage.

**PRESTON
SYSTEMS ANALYST** to £7,000
Our client is seeking an Analyst with around 2 years general commercial experience. Developments are heavily biased towards on-line data-base on IBM hardware and knowledge in these areas is sought.

Phone STEVE SVKES on 0532 444185 (day time) or on 0532 682417 (evening and weekends) or write to him at the address below.

**ROCHDALE
ANALYST/PROGRAMMER** to £8,500 + Benefits
A hardware manufacturer requires two analysts/programmers with sound commercial experience to undertake support roles. Excellent negotiable salary package.

**SOUTH MANCHESTER
PROGRAMMER** c £5,500
A programmer with around 18 months COBOL experience on systems of an engineering/manufacturing nature will find excellent prospects with our client. Any hardware background considered.

**SOUTH MANCHESTER
SENIOR ANALYST/PROGRAMMERS** to £8,000
Our client, a leading systems consultancy offers a top notch salary and involvement on large scale projects to analysts/programmers with in-depth IBM COBOL experience. CICS and/or DL/I very favourable.

**NORTH MANCHESTER
SENIOR PROGRAMMER** c £7,000
A manufacturing company will shortly be updating to IBM 4341 and require a senior programmer with around 8 years commercial COBOL and some CICS.

**LIVERPOOL
SYSTEMS ANALYSTS** c £7,000
This major company is looking for analysts with around 3 years IBM experience. The ideal applicants will have a minimum 1 year programming in COBOL, PL/I or ASSEMBLER. On-line and Data-base a distinct advantage.

Phone GORDON FORBES on 0532 444185 (day time) or on 0532 478172 (evening and weekends) or write to him at the address below.

**MANCHESTER
SYSTEMS PROGRAMMER** to £7,000
A UNIVAC installation requires a systems programmer having a background of around 3 years ASSEMBLER experience. Long term prospects in a modern and expanding environment.

**MANCHESTER
PROGRAMMER** c £5,500
Our client utilises the latest HONEYWELL hardware, and require a programmer of around 2 years COBOL experience to assist in large scale on-line developments. Any mainframe background considered provided applications experience is of a general commercial nature.

**MANCHESTER
SENIOR PROGRAMMER** c £5,500 + Big Benefits
A major hardware manufacturer wishes to appoint a senior programmer, having a minimum one year's ASSEMBLER on any hardware. Financial applications experience beneficial but not essential.

**MERSEYSIDE
PROGRAMMER/ANALYST** to £6,000
A lively systems house require a programmer with around 18 months COBOL in a commercial environment plus a good educational background to initially undertake a programming role, but to also receive analysis training.

**LIVERPOOL
PROGRAMMER/ANALYST** to £6,000
A world-renowned manufacturing company has a requirement for a programmer with around 2 years ICL COBOL, to assume an analyst/programmer position. Relevant analysis training given to a good commercial programmer.

LORIEN
COMPUTER SERVICES

Recruitment Consultants
OCS House, Servis Road, Leeds LS7 1NJ
Telephone 0532 444185
* 24 hour telephone service

01-408 1670

Analyst/ Programmers for Inspec

c £7,500

INSPEC is developing a new system to maintain its lead in the production of bibliographic databases, text handling, computer composition and typesetting.

The system is based on a PDP 11/70 under RSX 11M with on-line data entry and amendment of bibliographic data on VT100 or extended-character-set Logic terminals, with proof-printing on a Versatec electrostatic plotter printer. The on-line system will act as the front end to the existing 2966 under DME due to be upgraded in 1981.

There are vacancies for programmer/analysts with design and programming experience in ICL/IBM assembler and high-level languages keen to apply their skills to the problems of developing the new on-line system and communications between the existing machines and future replacements. Experience of ICL or PDP 11 equipment and of text handling of bibliographic systems is an advantage but not essential.

These posts are open to male and female applicants who will work in pleasant offices at Hitchin in rural Hertfordshire. Competitive salaries, with twice-yearly increases are offered together with job security and satisfaction in a friendly, professional atmosphere. Benefits include a 35-hour week on flexitime, 20 days' annual leave, attractive pension and life assurance schemes, subsidised meals, lunch vouchers, a sports and social club and assistance with relocation.

INSPEC is a department of the Institution of Electrical Engineers and has been operating its computer-based abstracts database system for over eleven years.

CVs or requests for an application form should be addressed to

Personnel Manager

THE INSTITUTION OF ELECTRICAL ENGINEERS
Savoy Place
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Tel: 01-240 1871 (198)

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For an application form and further particulars please send a.s.a. to the Principal, The Suffolk College of Higher and Further Education, Ropa Walk, Ipswich IP4 1XT, to whom completed forms should be returned by 21 April, 1980. Please quote the appropriate Post Number. (194)

TELECOMMUNICATIONS

A Technical Representative, preferably with relevant academic qualifications, is required by an international Record Carrier. Someone able to discuss with our engineers, customers and suppliers, lease circuits and associated telegraph FDM and Data Techniques. Also required is the ability to prepare system proposals for submission to the customer. Experience of British Post Office approval exercises would be an advantage.

An interesting opening in an expanding company — salary realistic for the right person. Please apply with full C.V. to Box 1089. (148)

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£5379-£5706 (inclusive)

Salary Award Pending

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Application forms and job descriptions are available from the General Manager's Department, Harlow District Council, 17 Adams House, The High, Harlow, Essex CM20 1BD. Telephone Harlow 26682, ext. 86. Closing date: 18th April, 1980. (149)

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ASSISTANT SCIENTIFIC OFFICER Computing Unit

The Computing Unit exists to run the Faculty's Computing facilities and to provide an advisory and support service to staff, particularly those engaged in research. The Unit requires an additional ASO with specialist knowledge in the hardware and software aspects of MICROPROCESSORS and their applications. The ASO should be prepared to assist staff from any of the disciplines: Materials, Engineering Mechanics, Electronics, Design, Systems of the Energy Research Group.

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Application forms and further particulars are available from: Mrs. A. F. Torr (A087/2), Faculty of Technology, The Open University, Walton Hall, Milton Keynes, or telephone Milton Keynes 653880, there's a 24-hour answering service on 653888.

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Our need is for a proven electronic/computer engineer preferably with experience of one of the following functions: programming, hydraulics, or aircraft systems.

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SALARY: £12,921 x £297 (3)-£13,812

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Assistance towards removal and relocation expenses in approved cases.

Further details may be obtained from the County Treasurer, County Hall, Trowbridge, Wilts. BA12 8JJ. Telephone Trowbridge 3641 Ext. 2608 (Mrs. Thorn), to whom applications, with full details of age, education, qualifications and experience, together with the names of two referees (one of which must be the current employer), should be returned by the 8th May, 1980. (150)

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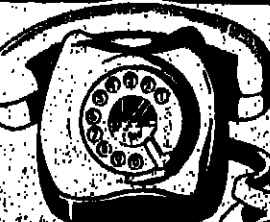
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Alpha House,
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£/945

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UNIVERSITY OF EDINBURGH

Department of Computer Science and
Department of Electrical Engineering

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HARDWARE

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1 LECTURER OR

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1 COMPUTING OFFICER

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Candidates applying for more than one of the above posts need only send one application.

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2	5	2	1	4	3	6	7	8	9
4	1	3	4	5	6	7	8	9	10
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The essential requirements for the post are:

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SENIOR PROGRAMMERS

HIGH WYCOMBE

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Our Client, a member of a group of companies with a turnover in excess of £500 millions, is seeking SENIOR PROGRAMMERS to undertake DEVELOPMENT WORK. The hardware is UNIVAC 90/30 offering REAL TIME, ON-LINE facilities through a network of SIXTY VDU'S in SEVENTEEN LOCATIONS.

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Vacancy Reference W232

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